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## TRANSPORTATION

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14 June 1983

**USSR REPORT  
TRANSPORTATION**

NO. 117

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CURRENT PLANS, PROSPECTS FOR IMPROVED ENGINE CONSTRUCTION

Moscow AVTOMOBIL'NAYA PROMYSHLENNOST' in Russian No 12, Dec 82 pp 6-7

[Article by B I Prudnikov, Ministry of the Automotive Industry: "A New Stage in the Development of Engine Building"]

[Text] An all-out savings in material resources, particularly toward reduction of the fuel consumption of motor vehicles and motors is one of the most important tasks of the automotive industry the 11th Five-Year Plan. Work to increase the technical level of automotive engines will have great significance in resolving this problem.

Reduction of the specific fuel consumption by 7-22 g/kwt-hr for carbureted engines and by 3-10 g/kwt-hr for diesels is called for; specific oil consumption is to be reduced by 0.1-0.3 percent of fuel consumption, and engine life prior to overhaul is to be increased by 30,000-75,000 kilometers.

Improvement in the engine performance figures will be achieved by improving the design of components and parts, reduction of mechanical losses and by use of more efficient operating techniques. The following will be the primary directions for improving the working processes of carbureted engines:

making possible combustion of "lean" mixtures using stratified charge and by increasing spark energy and duration;

using increased compression due to improvements in shape of the combustion chamber, increased turbulence of the mixture and introduction of a controlled instant of firing;

optimization of the working fuel mixture throughout the entire range of speed and load conditions of engine operation by improving carburetor supply systems and using electronic fuel injection.

Beginning in 1982 at the Trans-Volga Motor Vehicle Plant imeni 50th Anniversary of the USSR, a stage-by-stage introduction of the working process featuring swirling of the fuel-air charge at the intake to eight cylinder ZAZ-[Trans-Volga Motor Vehicle Plant] 53 engines for GAZ [Gor'kiy Motor Vehicle Plant] trucks will be realized. This will make it possible to increase the compression and improve fuel economy (up to 5-7 percent).

Series production of engines using premix chamber spray firing, the use of which will improve fuel economy up to 10 percent and reduce the toxicity of exhaust gases substantially, was begun for the GAZ-3102 "Volga" passenger autos in 1982.

Fuel economy improvements for the ZIL [Moscow thrice awarded the Order of Lenin, and Orders of the October Revolution and Red Banner of Labor Motor Vehicle Plant imeni I A Likhachev] and VAZ [Order of the Red Banner of Labor Volga Motor Vehicle Plant imeni 50th Anniversary of the USSR (Togliatti)] engines and engines for the "Moskvich" autos are to be provided by improving the combustion chamber and by increasing the (fuel) charge turbulence.

The use of electronic systems to regulate mixture formation and combustion processes represents a new stage in work to improve carbureted engines.

Electronic systems to correct the composition of carburetor mixtures and electronic fuel injection systems permit us to bring fuel supply systems close to the limit for effective depletion and provide a 5-7 percent reduction in fuel consumption and up to 50 percent in exhaust toxicity.

Systems with controlled electronic combustion with feed back, averting detonation due to firing retardation, significantly expand the possibilities for engine operation at high compression and the use of turbocharging (particularly in conjunction with fuel injection).

Thanks to the use of electronics, switching off some of the cylinders with the aim of conserving fuel under partial load conditions is also becoming workable.

During the 11th Five-Year Plan, the industry will introduce contactless ignition systems with electronic control for the VAZ and "Moskvich" auto engines, multifunction electronic monitoring systems for the VAZ, GAZ, ZAZ and "Moskvich" auto engines (to control firing and the forced idle economizer), on GAZ-53 and ZIL-130 trucks, on LAZ [L'vov Bus Plant] and LiAZ [Likinskiy Bus Plant] buses and complex systems for controlling firing and fuel injection for GAZ auto engines and RAF [Expansion unknown] minibuses. Moreover, integrated systems for controlling engine and transmission will be developed.

A feature in the development of serially produced diesel engines during the 11th Five-Year Plan includes extending the use of turbocharging, that will permit required power to be developed with a significantly smaller displacement, increase engine compactness and reduce mass, as well as providing for improved fuel economy.

An increase in the output of turbocharged diesels, with a corresponding reduction in production of diesels without turbochargers, is planned at the Yaroslavl' Motor Vehicle Plant (YaMZ).

It is here that production of modifications for the eight cylinder YaMZ-238F rated at 190-200 kwt with low pressure supercharging, was introduced at the end of the 10th Five-Year Plan; during the 11th Five-Year Plan, production

of the YaMZ-238F engines, rated at 220-240 kwt with high pressure supercharger as well as 12 cylinder YaMZ-240P engines, rated at 300 kwt with low pressure supercharging was initiated.

At the KamAZ [Kama Motor Vehicle Plant], preparation is underway for production of the modified KamAZ-7403 diesel, rated at 180 kwt with a turbocharger.

The following will become the new trends to increase the performance figures for the YaMZ and KamAZ turbocharged diesel engines:

reducing crankshaft rotation speed and simultaneously increasing the supercharging;

creating high-pressure fuel pumps with an increased fuel injection rate;

increasing the adaptability coefficient.

The indicated measures are providing improved fuel economy for motor vehicles and an improvement in their ecological indicators.

Radical changes are being planned in the engine output structure, with an increase in number of diesels and equipping the three-axle ZIL and "Ural" trucks, LAZ and LiAZ buses with them, alone with improvements in the carbureted motors and diesels in production today. This is being done with an eye to conservation of liquid motor fuels.

Moreover, at the Kutaissi Motor Vehicle Plant imeni G K Ordzhonikidze, facilities are being created for production of six cylinder diesels standardized with the eight cylinder diesels from the KamAZ.

In Kustanay, a plant is under construction to produce a family of air-cooled truck diesels. At the "Avtodiesel" association, facilities are being created for production of a new family of YaMZ-840 diesels for heavy-duty trucks and MAZ [Minsk Motor Vehicle Plant] and KrAZ [Kremenchug Motor Vehicle Plant] truck-trailer rigs, and 30- and 40-ton BelAZ [Belorussian Motor Vehicle Plant] mining dumptrucks.

Moreover, during the 11th Five-Year Plan, it is planned to begin construction of facilities to produce diesels for mass-produced trucks and the ZIL and GAZ truck-trailer rigs.

Thanks to these measures, the total output of diesels at enterprises of Minavtoprom [Ministry of the Motor Vehicle Industry] in 1985 will exceed the 1980 level by a factor of 1.8, while the portion of trucks with diesel engines will be 30 percent of total truck output volume.

All of the diesel models planned for production will have turbocharged modifications and, as a result, the power ranges of the various engine families will overlap. This circumstance, particularly when taking into consideration the fact that both liquid-cooled (with a power range of 110-120 kwt) and air-cooled (with a power range of 50-300 kwt) diesels engines will be produced, makes it possible to create transport equipment with an optimum engine for the specific operating conditions.

In addition to putting diesel engines in trucks, production of 35-50 kwt diesel engines for VAZ passenger autos is also called for during the 11th Five-Year Plan.

The design for this diesel was created by converting the carbureted VAZ-2103 engine using most of the parts from the latter, thereby providing for accelerated preparation for production.

During the 11th Five-Year Plan emerges at a new stage in its development with the production of diesels intended for practically the entire range of trucks and low displacement autos.

Alternative fuel types are being developed because of the limited resources for liquid motor fuels and the constantly growing demand made on them by other sectors of industry. At the present time, the most workable is the use of liquified propane-butane and compressed natural gas (methane) for truck transport. In addition to a savings in gasoline, these gases reduce toxicity in exhaust fumes (by a factor of 4-6 for carbon monoxide).

During the 10th Five-Year Plan, the design of a bottle-gas fed apparatus was developed, and series production of ZIL and GAZ trucks and GAZ-24 "Volga" taxis operating on liquified hydrocarbon gas was organized. Propane-butane gas becomes liquid at temperatures above zero, and its use does not require significant changes in engines and fuel systems, nor large capital investments in industry and operation.

In 1982 output of trucks operating on compressed natural gas was started at the ZIL and GAZ. Taking into consideration the great reserves of this fuel, there are plans to develop designs and organize the production of such bottle-gas fed passenger autos and buses.

In connection with this, the use of natural gas in liquid state is promising. Studies on the design of motor vehicles operating on liquified methane have been initiated.

Much work has been done on the use of alcohols, particularly gasohol, as a fuel for motor vehicles. Use of methanol insures normal operation of serially produced carburetor engines, with relatively inconsequential carburetor adjustments being necessary. The dynamic performance figures for the motor vehicle increase by 6-9 percent, the content of harmful substances in exhaust gases is reduced by 15-30 percent, and the actual gasoline savings is 12-15 percent. Addition of methanol to gasoline increases the fuel octane number without costly antiknock compounds.

During the 11th Five-Year Plan, ZIL and GAZ trucks will be produced that have been adapted to operate on gasohol mixtures.

Studies have also been undertaken within the industry on the use of pure methanol and its decomposition products, synthetic fuels, mixtures of gasoline and hydrogen and pure hydrogen as motor fuels. The foundation is being laid, based on which automotive equipment capable of operating on essentially new types of fuels of petroleum origin will be developed.

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## MOTOR VEHICLES AND HIGHWAYS

### IMPROVEMENTS FOR K-701 TRACTOR

Moscow GUDOK in Russian 8 Mar 83 p 4

[Article by F Danilovskiy, Novosti Press Agency: "A More Powerful Kirovets"]

[Text] Another powerful K-701 "Kirovets" wheeled farm tractor rolls off the production line of the Kirov Plant in Leningrad. This is the most powerful Soviet farm tractor. It has good riding qualities, is easy to control and has a comfortable cab for the driver. The machine has received favorable comments, not only from the Soviet machinery operators but from others as well. It is also popular abroad. Evidence of this are the gold medals from international shows and fairs in Budapest, Plovdiv and Zagreb. The K-701 tractors are exported to Canada, Italy, Australia and the socialist countries.

The project's chief designer A Strakhal says: "The need for the development of a powerful wheeled tractor arose in the early 1960s, when development of the virgin and fallow lands was continuing in the USSR. At that time the power of most of our plowing tractors did not exceed 75 hp. These tractors did well on the small fields of the foreign firms, but here in the Soviet Union, where the collective farm lands cover 20,000 to 30,000 hectares, these machines were underpowered. Therefore the Soviet engineers and scientists faced the problem of developing a fundamentally new tractor, the productivity of which would be greater by a factor of 2 to 2.5. Along with the tight schedule it was necessary to set up series production of these machines."

The team of the Kirov Plant in Leningrad was assigned the responsibility for carrying out this critical task. The first production 220-hp K-700 tractor was fabricated there in 1963. It was later replaced by the K-701 model, which is now in series production. One such machine can plow more than 2 hectares of land an hour, which is two to three times more than the old-model caterpillar tractor could plow. One Kirovets can replace three of the old machines. The result is savings of fuel and manpower, and the labor productivity of the tractor driver improves. The "Colossus of the Steppe" cannot only plow and cultivate the soil but can also be used as a prime mover or bulldozer. It is equipped for operations with 53 towbar accessories. The large wheels of the tractor permit it to operate better in the fields. It has no problems with poor roads and can operate at speeds up to 35 km/hr on the highways.

A special feature in the Kirovets design is the unique turning system, consisting of two half-frames which are joined by hinges. Thanks to this the tractor is highly maneuverable. In the development of the K-701 tractor the designers paid considerable attention to the creation of comfortable working conditions for the driver. The cab is sealed and located quite high, which reduces the dust level in the cab. The good visibility and the heating in the winter and ventilation in the summer create additional conveniences for the driver. Hydraulic boosters facilitate handling of the machine.

The design of the Kirovets is being improved all the time. This year production is starting of tractors with engine operating life 8,000 hours to major overhaul. This is 2,000 hours more than for the machines produced previously and has been achieved through the use of new technology and mechanization and production automation.

Experimental prototypes have also been developed of a 300-hp wheeled tractor. Work is being done to develop machines of up to 500 hp. In the new Kirovets models the cab is air conditioned. The blue-tinted windows protect the driver against the incoming solar rays. The designers have also given consideration to driver safety. The cab of the new tractor is equipped with a structural frame which protects the cab against deformation in an accident.

The engine for the future tractors, now being developed by the designers of the Yaroslav Engine Plant, will be 200 kg lighter than the engine now installed on the K-701 model.

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MOTOR VEHICLES AND HIGHWAYS

NEW MODEL LIFT TRUCK TO BE PRODUCED

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 14 Jan 83 p 1

[Article by correspondent N Ordinyan, Charentsavan: "First Production Unit"]

[Text] The first production model 40912 machine was assembled yesterday at the complex being constructed in Charentsavan for the production of powered lift trucks.

We are walking through the existing forging and pressing plant departments to the temporary assembly area. My guide, Robert Aramaisovich Melikyan, director of the assembly plant, is forced to interrupt our conversation from time to time. People come up to congratulate him. Here is the assembly department. In its festively decorated interior we see the appropriately bright-yellow bodies of five lift trucks, on which the members of the integrated team of assemblers led by S Nagdalyan are working rapidly but without rushing.

M Oganesyan, director of the assembly department, says: "Our assemblers have been preparing for this day for a long time.

We recruited young workers from the neighboring forging and pressing plant and from other Charentsavan enterprises. They studied their new profession at the Yerevan Lift Truck Plant under the developers of the new machines--the specialists of the L'vov State Special Design Office for Lift Trucks. They prepared themselves very well--nearly every individual has mastered three specialities--metalworker-assembler, electrician and welder. They handled their first assignment well--last year they assembled the experimental models of the new machines. But they are still excited--this is a day to remember: the first production machine is being assembled."

The assemblers work as a well-coordinated team. While the frame of the first machine is "packed" with dozens of complex assemblies and parts, I ask Melikyan to continue his story.

"Construction of the complex is going well. New capacities in the forging and pressing plant will come on stream this year, and we are planning startup of the first section of the casting plant. Mass production of the most

important lift truck components and parts has been worked out in the enterprises of our association "YerAZ"--the main plant, the automotive accessory and hydraulic equipment plants, and the forging and pressing plant. It is true that construction of the assembly plant of the complex has just started. Therefore, we have adapted for assembly operations a small bay of the forging-pressing plant, where we will assemble the lift trucks until summer, when the temporary assembly department will come into operation."

"Wouldn't it be better to wait until the summer?"

"No. The schedules are tight. While this year and next year we will be fabricating only a thousand lift trucks of 1-ton cargo capacity, in 1985 we will produce 7,500 machines, including the first 50 2-ton units. All the enterprises of the association are preparing for this high production rate; and we assemblers can't sit off to one side. We must work out as quickly as possible all the technological processes and transfer them over to the future high-output production lines on very tight schedules. At the moment we must both produce the machines and install the equipment. Things will be easier in the summer."

The first production lift truck is being outfitted with all new components and parts as we watch. Now it is finished. While the crew chief S Nagdalyan pours fuel and oil into its tanks, there appears in the department a red placard--"Motherland--accept the first Charentsavan lift truck." The meeting of the production and office workers of the assembly plant and the forging pressing plant starts. As all those present applaud Nagdalyan slowly drives around the area and stops the machine in the center.

Aramaisovich continues: "The model 40912 lift truck, production of which we have initiated, is a small maneuverable machine intended for ports, warehouses, railway stations, factories and plants. The lift truck can operate in 40-degree heat and cold, in large-tonnage container ships and railway cars. At the request of the customer we can outfit it with a wide range of cargo handling adapters. In a word--it is a universal machine, suitable for any branch of the national economy."

"Is there any chance your associate contractors will let you down--after all, there are dozens of them?"

"The lift truck consists of 2,500 components and parts. At the moment we make only 79 of the components and 76 of the parts. We obtain the others from the enterprises of our association, from all corners of the nation and from the SEV/CMEA/ countries. In spite of this large number of suppliers, to date we have no reasons to complain. Our subcontractors understand very well how much the nation needs this equipment."

The first Charentsavan lift truck is complete. Tomorrow others will follow it.

## MOTOR VEHICLES AND HIGHWAYS

### PRODUCTION OF NEW GAZ-53-12 TRUCK BEGINS

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 8 Jan 83 p 1

[Article by correspondent V Noskov, Gorki: "A New Farm Truck"]

[Text] The Gorki Auto Plant has initiated series production of the new GAZ-53-12 model truck.

"These machines are being awaited impatiently in the field," says A Baranov, director of the technology division for truck production of the auto plant. "Last summer and fall these trucks underwent extensive tests in harvesting operations on the collective farms and state farms of the RSFSR Neschernozem zone and in the Ukraine and Uzbekistan. The trucks had to operate under difficult road conditions: they hauled vegetables, fruits and cotton from the fields and plantations and had to overcome both mud and sand. The trucks passed their examinations with flying colors: the operating personnel concluded that the new truck is reliable both in the highlands and on the plains, on asphalt pavement and on country roads."

Together with Baranov, we are walking along the production line on which the new trucks are being assembled, rapidly but without any bustle or hurrying. As we watch, a frame is being "fleshed out"--the assemblers are installing the front and rear axles, hanging the wheels and installing the cab. The parts do not differ significantly from those used in assembly of the GAZ-53 A trucks.

"This is the case only at first glance," clarifies E Zhukov, the department head. "Take a look here: the frame itself is designed to carry more weight than before through the addition of metal flanges. The rear axle support has also been strengthened. And the transmission has been changed--a special easy-engaging clutch will improve the reliability of operation of this assembly."

The new truck differs from its predecessor in better technical and operational qualities. Its cargo capacity has been increased to 4.5 tons and the engine service life now makes it possible to extend truck operations to 250,000 km without major overhaul. Maintenance is simpler. Refuelling stops will be required less often. This particularly pleased the farm operators who tested the new truck. Still another important detail: in spite of the increased

engine power (now 120 hp) the truck uses 2.5 percent less fuel. It has been estimated that the use of the new trucks in the national economy will have considerable economic effect: fuel consumption will be reduced by more than 80,000 tons and the number of drivers will be reduced by 10,000.

"More than half the trucks of this series will go to the agricultural users," says L Tareev, senior shift supervisor, "therefore, we are trying to make sure that each truck of the new model not only comes off the line on schedule but also has no defects."

Tareev's team is one of the best in the plant. Tareyev himself has worked in the plant for nearly 30 years. He is a party member and holder of several decorations. There are 225 workers under his direction. Nearly every worker has mastered several related specialities. The team is well known for its strict discipline. This is why it was entrusted with starting series production of the new trucks.

"Naturally, we were all excited initially," says metalworker-assembler N Shvyganov. "After all, new operations were involved. But now everything has been smoothed out."

Shvyganov can perform more than 30 operations on the production line. The work standards say that 2 minutes should be spent on each of these operations. We look at the clock: Shvyganov completed the operation in 1 minute.

At the end of the line, from which a new truck rolls every 2 minutes, the machines come under the attentive eye of inspector I Susanov.

"I worked as a driver for more than 30 years," said Susanov. "I drive nearly all the postwar truck types. I can say frankly that this new truck suits me best of all."

The multi-thousand team of the Gorki Auto Plant has successfully completed the second year of the Five-Year Plan. For its performance the plant has been awarded the Red Banner of the CPSU Central Committee, the USSR Council of Ministers, the All-Union Central Council of Trade Unions, and the Komsomol Central Committee with a citation on the All-Union Honor Roll at the Exhibition of Achievements of the National Economy of the USSR. The auto plant workers have started the third year of the Five-Year Plan with a good stock of parts and with high working spirit. They are placing particular emphasis on fulfilling ahead of schedule the plan for delivery of trucks to the agricultural users. The plant is sending more than 70 percent of the trucks produced to the agricultural sector. The workers have resolved to deliver before the beginning of the spring field operations hundreds of trucks more than called for in the plan. Nearly half of these machines will be of the new model.

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## RAIL SYSTEMS

### RAIL MINISTRY TAKES MEASURES TO IMPROVE TIMBER SHIPMENTS

Moscow GUDOK in Russian 19 Mar 83 p 1

[Article under rubric "Let's Assure High-Speed Delivery for Timber Shipments": "Reserves Must Be Used Completely"]

[Text] The data that has come in to the dispatcher office of GUDOK and LESNAYA PROMYSHLENNOST' continues to attest to the fact that the timber is being transported unsatisfactorily on the network. In order to improve the state of affairs, the Ministry of Railroads has planned specific measures. They have been made known to the administrators of the roads and the sections and the production associations in the timber industry.

In order to coordinate the joint efforts of the railroad men and the timber procurement specialists, there was recently created an operations group, which includes the deputy chief of the administration of rock loading, of the Main Administration of Traffic, Ministry of Railroads, V. F. Krylov; deputy chief of Soyuzglavles, under USSR Gosnab, V. V. Vorob'yev; and chief of the administration of transportation, USSR Minlesbumprom, A. G. Prokhorenko. Our correspondent requested V. F. Krylov to discuss the reasons for the lagging behind and the most important tasks of the persons in related areas. And so, he now has the floor.

\* \* \*

First of all, it is necessary to emphasize that considerable complications in the shipments of timber arose for the railroad men because of the unfavorable weather conditions. In addition, poor use was also made of the rolling stock: the handling of trains was delayed, the extent of transfer of cars at juncture points was not fulfilled, and unloading was weakly organized. The fault for this lies both with the railroad men and with their clients. In particular, made-up trains were formed unsatisfactorily by the stations and timber-loading enterprises on the Sverdlovsk, Oktyabr'skaya, Gorkiy, Far Eastern, and Baykal-Amur Roads.

Steps were not taken to provide for first-priority delivery of cars to be loaded with timber materials -- this pertains to managers of the Oktyabr'skaya, Sverdlovsk, Gorkiy, Krasnoyarsk, Northern, and Far Eastern mainlines. At the same time, for example, the Gorkiy and Far Eastern mainlines, failing to

cope with the assignments of Soyuzglavles, under USSR Gossnab, allocated rolling stock in excess of the established norms to enterprises that are in charge of their own procurements.

On the Oktyabr'skaya Road, with a plan of 1005 cars, in the first half of March only 807 were sent out every day. This occurred because of the fact that the people there worked poorly with the local freight, and failed to use flatcars when transporting the timber. And, incidentally, the number of those flatcars in the mainline's pool was considerably more than the norm.

A large lag also occurred on the Northern Road.

It also failed to provide its clients properly with empty cars -- every day the undersupply of those empties was 540 cars. They were let down, of course, by their neighbors on the Moscow and Oktyabr'skaya Roads, who failed to send to it for control purposes the necessary number of empties. In addition, the intraroad control was organized in an extremely poor manner. As a result, there was a constant undersupplying of gondola cars to the Sol'vychegodskoye, Sosnogorskoye, and Arkhangel'skoye Sections.

Unfortunately, little attention is being directed to shipments of timber freight on the Belorussian, Kuybyshev, South Urals, Odessa, Trans-Caucasus, and Southeastern Roads.

The persons who are to blame for the fact that a serious lag was allowed to occur are the timber procurement specialists themselves. Considerable losses of loading resources were incurred because of tardy unloading, the failure to use the cars that had been provided, and the excessive amounts of car idle time on the sidings. In the Irkutslesprom Association, the cars engaged in freight operations take an amount of time that is twice that which is stipulated by the norm. Large amounts of idle time in excess of the norm are incurred by the Tavlinskiy Timber Management, the Tyumenskiy LPK [Timber-Management Complex], the Lenales Production Association, and many other shippers. All this leads to irrereplaceable losses of empty cars.

For example, for the Kirovskiy and Arkhangel'skiy "lessnabsbyt's" [timber supply and sales organizations], they constituted during the first of March, respectively, 300 and 200 cars. The "record" in this regard was established by Sredurallessnabsbyt, where, as a result of excessive amounts of idle time, more than a thousand cars were lost. Very bad use is made of the rolling stock at the Mirnenskiy Timber Management at the Chermanchet Station. On the Krasnoyarsk Road, as many as 150-200 cars that arrive for timber from various regions of the country stand idle every day, while awaiting loading at that enterprise. And yet, for some reason, this does not disturb the managers: the work there has been organized for only one shift, and the unloading fronts are not being expanded.

On the East Siberian, Trans-Baykal, and other roads, the shippers frequently do not use the rolling stock that has been provided to them. As a result, during the first 15 days of March, 7,280 cars were underloaded on the network.

There has been a sharp reduction in the shipment of timber on days off and holidays by the clients on the Far Eastern, Oktyabr'skaya, Gorkiy, East Siberian, Baykal-Amur, and Trans-Baykal Roads.

On a number of mainlines, poor use is being made of the rolling stock that has been leased from the MPS [Ministry of Railroads]. As a result, during the first half of March, approximately 500 carloads of technological raw materials were undershipped as against the plan.

The situation is also proceeding unsatisfactorily with the transportation of paper, especially on the Oktyabr'skaya, Northern, Baltic, Belorussian, Krasnoyarsk, and East Siberian Mainlines. Frequently the woodpulp and paper combines fail to use the empties that have been supplied to them. For example, at the Arkhangel'skiy TsBK, for that reason, 205 cars were undershipped. In the second ten-day period of March, 20-30 empties are not used every day. The same situation prevails at the Bratskiy LPK, and the Krasnokamskiy TsBK. The unloading of the rolling stock at the enterprises on that branch has also been poorly organized.

All these shortcomings, naturally, lead to a sharp delay in the turnover of the rolling stock and to an acute shortage of it.

A thorough-going evaluation of these shortcomings was given in a special instruction issued by the Minister of Railroads, N. S. Konarev; Deputy Chairman of USSR Gosnab, A. N. Lebed'; and Minister of the Timber, Woodpulp-and-Paper, and Woodprocessing Industry, M. I. Busygin. A decision was adopted, which directs both the railroad men and the timber procurement specialists at the unconditional fulfillment of the plan for the shipments of timber freight in March and at the reduction of the periods of rolling-stock idle time. In this regard, it is necessary for the Far Eastern Road to increase the supplying of empties to the Baykal-Amur Road. The Gorkiy Mainline has been authorized to use, for the loading of timber traveling in the same direction, some of the gondola cars which it dispatches for control purposes. The roads in Siberia and the East must send to the Krasnoyarskiy Road every day no fewer than 350 boxcars and flatcars.

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CSO: 1829/211

## RAIL SYSTEMS

### RAIL SHIPMENTS OF TIMBER FACE PROBLEMS IN UDMURT ASSR

Moscow GUDOK in Russian 10 May 83 p 1

[Article by GUDOK correspondent A. Yudanov and UDMURTSKAYA PRAVDA correspondent V. Piskunov, under rubric "Let's Assure High-Speed Delivery for Timber Shipments": "Pileups at the Rails (Unannounced Inspection by GUDOK and UDMURTSKAYA PRAVDA)"]

[Text] The vast territory of the Igrinskiy Timber Management, buried under deep snow, has been completely crisscrossed by narrow footpaths. Making its way along one of them, the inspection brigade stumbled upon two -- would you believe? -- gondola cars. How did they get out here? It was immediately learned that right there, under our feet, or, rather, under a deep layer of snow, was one of the enterprise's loading dead ends.

"Well, of course, we did make a little mistake," the deputy director of timber management, M. Zaytsev, says. "The bulldozer broke down, and we don't have enough people to clear the tracks. And there's no special reason to hurry, because the station still won't be giving us any freight cars."

Somewhat later, the Igra station chief, V. Chirkov, explained that he was not supplying empty cars because the timber management's sidings were not in passable condition.

This would seem to be a minor episode, but it is an extremely typical one for the interrelations between the related enterprises. Everyone sees the mote in his neighbor's eye and fails to notice the beam in his own.

Meanwhile the timber is not being taken out. Wherever you look, there are tremendous stacks and simply heaps of timber output. Some of them are 10-12 meters high, although, according to the norms, they are supposed to be only half that height. Lying under the snow is "carpentry items" -- several thousand door and window units. They have been lying there for half a year. . .

The mountain of technological chips -- a very valuable raw material for the woodpulp and paper industry -- looks like a gigantic layer cake, but, instead of frosting between the layers, there are thick layers of snow. There are more than 3000 cubic meters of these chips here. It has been a long time since anyone has made his way to the bottom layers, and they are already rotting

there. For months, hundreds of cubic meters of boards, round timber, construction lumber, and packing-box boards have been awaiting shipment.

On the sidings at the other timber managements in Udmurtia, the situation is only slightly better.

"We were forced to stop the enterprise because the warehouses and areas are filled to overflowing with raw and other materials, director of the Kezskiy Timber Management, A. Mikhal'kov says.

For the enterprises of the Udmurt Association as a whole, more than 110,000 cubic meters of finished output have not been shipped out. This does not take into consideration the raw materials that have accumulated at the upper warehouses and at the areas for cutting up the felled trunks. And yet several of them will soon be flooded by water from the melting snow.

"Give us freight cars!" the procurement specialists ask the railroad men from day to day. But there are not enough freight cars. Last year the timber managements in the Udmurtles Association received 6,319 fewer freight cars than had been planned. During the current year the situation has improved somewhat, but not too much. During the first two months the railroad men owed the Igrinskiy Timber Management approximately a hundred freight cars, and the Kezskiy, more than 300. For the whole month of February, the Pastukhovskiy Timber Management was existing on starvation rations.

It would seem that with this shortage of empty cars, the timber procurement specialists would place a high value on every freight car that was supplied to them, and would also value its work time. But that is not how it was. Last year, because of rolling-stock idle time on sidings of the Udmurt timber managements which was in excess of the norm, 6,600 freight cars worth of loading resources were lost! In the current year the idle-time periods have grown even more. They are almost twice the established norm. The assignment for static load is not being fulfilled. Why?

Dozens of reasons are given at every timber management. There aren't enough loaders. The railroad workers are poorly provided with the necessary items -- straps and tighteners. There's not enough machinery. . . . We shall discuss the necessary items separately. As for everything else, this is the fault of the organization that is shipping the freight, and their fault only. They engage little in the development of the transportation and warehouse management. Take the same Igrinskiy Timber Management. Mechanizers N. Nekrasov and V. Lobikov complained that there has been a failure to observe the schedule for technical servicing and preventive repair of the machinery, as a result of which the equipment frequently goes out of commission. Actually, the cranes and bulldozers here are sometimes idle for days at a time because of breakdowns. Nighttime loading has not been organized here, and everything is not well with labor discipline in the transportation shop. Two years ago there was a fire at the enterprise and the railroad track also suffered from it: several crossties were destroyed by fire. The managers of the Udmurtles Association immediately made a tearful request to the Izhevsk Railroad Section to reduce the loading front for the timber management. An effort was made to meet halfway the people who had suffered the losses in the fire.

Two years have gone by. The burned shop was restored long ago, the crossties in the track have been replaced, but the loading front is still curtailed.

In a word, there exist reserves on the sidings, and they are considerable ones. And so, does that mean that only the shippers are to blame for everything? No, the railroad men also have been working in a manner that is far from irreproachable. They supply the freight cars spasmodically, and fail to pick up the loaded ones promptly. While punctiliously fining the people at the timber managements for any rolling-stock idle time in excess of the norm, they themselves fail to serve as an example of an economical attitude toward the freight cars. For example, whereas previously in Igra the amount of time stipulated for removing a simultaneously supplied and loaded group of freight cars was two hours, now it is eight. That's four times more! Such advantageous conditions that have been established by the railroad men for themselves cannot in any way mobilize the shippers, who see the freight cars, that are ready for shipment, standing idle for long hours.

A very acute question is the shortage of tighteners and straps. The shortage took on a chronic nature long ago. The Izhevsk Section of the Gorkiy Railroad has been satisfying by less than one-quarter the purchase requests of the timber managements in the Udmurtles Association, and the Perm Section of the Sverdlovsk Railroad has been satisfying those requests even worse. And yet without these very necessary items one cannot form a "cap"; without them, the mechanization of loading is impossible.

Straps and tighteners disappear by the thousands on the unloading railroads, chiefly on the Kuybyshev, Moscow, Southeast, North Caucasus, and South Urals Railroads. And of those that are in fact returned to the timber managements, scarcely half of them can be reused. When will the proper procedures be established for the return of these expensive items? The lack of these items exerts a very great effect on the rates of shipment of the timber products.

On the calendar we see the month of March, the first month of spring. Before the advance of the impassable conditions it is necessary to bring out the timber from the upper warehouses, and this requires the freeing of the lower ones. The railroad men and the timber procurement specialists must unite their efforts and fulfill the March shipment plan, and pay off their debts.

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## RAIL SYSTEMS

### FEBRUARY PLAN FOR TIMBER SHIPMENTS NOT FULFILLED

Moscow GUDOK in Russian 12 Mar 83 p 1

[Article by the Dispatch Service of GUDOK and LESNAYA PROMYSHLENNOST', under the rubric "Let's Assure High-Speed Delivery for Timber Shipments": "They Lagged Behind in February..., They'll Make Up for It in March"]

[Text] On 5 March, in their joint statement, GUDOK and LESNAYA PROMYSHLENNOST' discussed the decisions of the Board of the MPS [Ministry of Railroads] that are aimed at speeding up the timber-loading conveyor belt. Today's discussion deals with the reasons for the disruption of the assignments for the shipment of wood products and paper in February and the tasks of the current month.

We shall note immediately: the persons who are responsible for the fact that the February plan for the shipment of timber was realized by only 85 percent are, largely, the railroad men. They undersupplied the timber-procurement enterprises with more than 27,000 freight cars.

As a result, the wood products that were procured have been piling up at the warehouses and have been spoiling. The largest amounts of unshipped output have developed at enterprises of the Arkhangel'sklesprom, Komilesprom, Kirovles-prom, Permlesprom, and Dal'lesprom associations. And what is alarming is that this picture is being repeated from month to month. What is the way out of this situation?

Reader Comrade Shapovalova, for example, in her letter to our dispatch service, writes:

"I know that my suggestion is not a new one, but I consider it to be my civic duty to remind people once more: the plans for timber procurements must be brought into conformity with the capabilities of the railroad men."

Well, then, this idea deserves attention. At the same time, it is necessary to take something else into consideration: the capabilities of the railroad men can increase considerably if the timber procurement specialists themselves will take a thrifty attitude to the rolling stock. Unfortunately, they are to blame for the fact that, in February, approximately 3,500 freight

cars of timber were not shipped to consumers. True, this is much less than in January. But at the present time, when, in essence, the fate of the annual plan is being decided, such losses are inadmissible. We address this reproach to Krasnoarsklesprom, Dal'lesprom, and especially to Irkutsklesprom. The Irkutskers are continuing to "compete" with the railroad men for "first-place position" in disrupting the shipping plan. And this has been the sad result: if February, for reasons attributable to the railroad men, 1,084 freight cars of timber were not shipped here, and, for reasons attributable to the timber procurement specialists, 1,077 freight cars.

And so this is how it is turning out: for the timber procurement specialists, the winter is the peak season, but it is precisely at that time that the shortage of empty cars becomes most acute. Only one thing remains -- to take an even more thrifty attitude to every freight car, to act more decisively to prevent any undershipments in freight cars or any freight-car idle time in excess of norm.

The true path to reducing the shortage of empty cars is to increase the static load. However, this was not done in February. For example, the timber procurement specialists undershipped in every freight car an average of 0.23 tons. As a result, last month more than 1300 freight cars were lost.

One continues to see large periods of idle time of rolling stock on the sidings of Minlesbumprom enterprises. In February, with a norm of 6.22 hours, that idle time came to 8.09. That is 0.24 hours more than during the same month last year. The situation is the worst at the Priozersk Woodpulp Plant, the Kotlas TsBK [Woodpulp and Paper Combine], and the Monzenskoye and Shor-tyugskoye Timber Managements. The rolling stock is idle there at a rate that 1.5-2 times greater than the stipulated norm. For Minlesbumprom as a whole, in February, as a result of idle time in excess of norm, 4000 freight cars were lost. Those freight cars could have carried an additional 213,000 tons of timber output.

Without a doubt, a major reserve for replenishing the freight-car pool is unloading. Increasing the rates of unloading means accelerating the turnover of the rolling stock and assuring the more complete satisfying of the need for shipments. In this sense also, February was a month in which there were definite shifts. On the average, within a 24-hour period, at woodpulp and paper enterprises 302 freight cars were not unloaded (in January, 420). The rolling stock was released worst of all at the Soyuztselyuloza Association, where the lion's share of the losses are on the account of the Bratsk Timber-Management Complex. Its general director has been given a reprimand for this.

Among the enterprises that chronically lag behind with regard to unloading, it is necessary to mention such enterprises as the Baykal'skiy, Segezhskiy, and Kondopozhskiy TsBK [Woodpulp and Paper Combines], the Amurskiy Woodpulp and Cardboard Combine, and the Kzyl-Ordinskiy Woodpulp and Cardboard Plant.

Unfortunately, February has "not eased the life" also of the rolls of paper. Surpluses of them at the warehouses have increased: with a norm of 142,000 tons, there are 173,500 tons of them there. And this is understandable. Whereas the January plan for shipping was overfulfilled, in February it was

fulfilled by only 91.5 percent. The railroad workers gave an unfair share of boxcars, in the most tangible way, to the workers of the Solombal'skiy, Arkhangel'skiy, Kotlasskiy, Sys'skiy, Kondopozhskiy, Kegezhskiy, and Kamskiy TsBK. It is not surprising that the shipping plan was fulfilled by only 70-85 percent.

On the other hand, one is alarmed by the shortage of finished output at the warehouses of certain enterprises. For example, at the same Baykal'skiy TsBK the storage capacities of the warehouses were designed for 2,640 tons of paper, but at the present time the amount there is only slightly more than 600 tons. The same picture prevails at the Bratskiy and Ust'-Ilimskiy LPK [timber-management complex], and the Balakhninskiy TsBK. It is obvious the production capacities are not being used properly there.

The month on the calendar is March. We might recall that the railroad workers have given their firm promise this month to improve the providing of the timber procurement specialists with empties, and to create all the conditions for fulfilling the plan for shipment of timber and paper. One of the basic prerequisites for this has been created: the daily plan for providing of empty cars in March exceeds the February plan by 560 cars. However, the results of the first week of March have not been particularly gratifying: the railroad men owe the timber procurement specialists more than 12,000 cars, and, correspondingly, the shipment plan was fulfilled by only 78 percent. It must be kept in mind that March is the last month of the first quarter. At the present time we must waste neither a day nor an hour. It must be hoped that, in close, businesslike contact, the people in the related areas will be able to speed up the rate of the timber-loading conveyor belt, and will complete the quarterly assignment with distinction.

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CSO: 1829/211

RAIL SYSTEMS

CHRONIC LACK OF RAIL CARS DISRUPTING PAPER COMBINE

LD232303 Moscow Domestic Service in Russian 1600 GMT 23 Mar 83

[Report by Vitaliy (Pidchenko) from Karelia]

[Text] A worrying situation has developed at the Kondopoga Paper-Pulp Combine. At this time on 23 March more than 8,000 tons of ready output have been stockpiled because not enough railroad cars have been delivered. All the free area of the factories are full of paper crammed into warehouses. Therefore, the enterprise has been forced to work at half strength. If the railroad workers do not take extreme measures, there will be a general threat of a complete shutdown. I recall that this concerns one of the biggest enterprises in this industry. The Kondopoga Combine supplies 37 percent of all the newsprint produced in the country. PRAVDA, IZVESTIYA, TRUD and many other publications are printed on it. So, are such interruptions to its work permissible? Here is what Viktor Ivanovich Yevgen'yev, director of the combine, said to me today:

[Begin recording] [Yevgen'yev] The shortfall in deliveries of railroad cars to the combine has become chronic. It is enough to say that in the past year the Oktyabr'skaya Railroad provided us with about 3,000 cars less than the quota. For this reason, 6,500 tons of newsprint was not provided. In February of this year the number of cars supplied was 512 short. In March there was not a single day when the number of cars supplied was up to the level requested. That is why the warehouses and shops are overflowing constantly. The promise by the Oktyabr'skaya Railroad administration on supplies of cars to us is more than adequate, but you can see for yourself how this is backed up in fact. Certain production lines have to be closed down every day, including the fastest and most powerful line in the country, machine No 8.

[Question] Viktor Ivanovich, how many railroad cars are required to remove the stockpiled paper?

[Answer] Seven hundred cars are required to clear the combine. We have a large request in to the Railways Ministry to take urgent measures to rectify the situation which has arisen. [end recording]

Having received this material today, the editorial office instructed correspondent Dmitriy (Parshikov) to get in touch with the management of the Oktyabr'skaya Railroad. Nikolay Petrovich (Surodin), first deputy chief of the railroad, who was involved in a conference call at this time, came to the telephone. Having learned of the problem, he phoned instructions to dispatch manned cars to the Kondopoga Paper-Pulp Combine. Until the end of March, he assured, the plan for the supply of railroad cars to the combine will be fulfilled strictly, and in April the backlog which has been formed will be completely cleared. The unsatisfactory situation with the supply of cars to the Kondopoga Paper-Pulp Combine, said Comrade (Surodin), came about primarily because instances of adjoining railways supplying defective cars have been more frequent recently.

CSO: 1829/177

RAIL SYSTEMS

SHORTAGE OF FREIGHTCARS AFFECTS PAPER COMBINE

LD061923 Moscow Domestic Television Service in Russian 1300 GMT 6 Apr 83

[From the "Vremya" newscast; unidentified correspondent's report: "Valuable Products Are Perishing"]

[Text] The Arkhangelsk Pulp and Paper Combine, one of the largest in the country. Here they work fast and to high standards. These machines, for example, produce superthin cardboard, the production of which saves a huge amount of stock, electricity and chemicals. But specialists are now forced to reduce the speed of these and other highly productive machines. All of the combine's warehouses and space are filled with finished products. [Camera provides shots of rolls of very thin cardboard and rolls of paper being stored out in the open.]

[Begin machinist Zakharov video recording] The combine is consistently not receiving enough freightcars. There are 10,000 tons of high-quality cardboard out in the street, in the open air. It has been warped by heavy rains, and the strong Arkhangelsk frosts. Now spring is beginning and the cardboard is still out in the open, and high-quality materials are becoming unusable products. We have more than once asked the Ministry of Railways, and written collective letters requesting, begging that we be given fore freightcars, but the answer is always the same:

The capacities of the cardboard machinery are continually being underused. We do not receive freightcars systematically.

Today, the cardboard mill received just 10, instead of the 20 freightcars it is supposed to have per shift. In the first quarter of 1983 alone, the combine had a shortfall of more than 2,000 freightcars. [end recording]

Not only cardboard is awaiting dispatch; more than 30,000 tons of paper products alone have accumulated at the combine, and thus supplies to Moscow cardboard works, to enterprises in Kishinev, Murmansk, Saransk and other towns have been interrupted. The dispatch of fodder pellets for livestock and of fibre-board has been held up. The Arkhangelsk paper workers await help; they need freightcars.

CSO: 1829/177

## RAIL SYSTEMS

### LEGAL OFFICIAL NOTES RAIL SYSTEM PROBLEMS

LD281932 [Editorial Report] Moscow Domestic Service in Russian at 1010 GMT on 28 February 1983 carries a talk in the "Man and Law" program by Moscow Transport Procurator (Dmitriy Ivanovich Trusov), merited RSFSR jurist and senior judicial counsellor, under the title "Improving the Reliability and Quality of Rail Transportation." Trusov begins by saying:

"The timely delivery of cargoes to their destination and guaranteeing their safety is everywhere monitored strictly and in an all-round and unremitting way by various services, including the transport procurator's office. Transport workers have the very important tasks of making more efficient use of rolling stock in order to satisfy more fully the transportation needs of the national economy, heightening the reliability of the work of transport systems, improving the service given to passengers, and cutting damages and losses during transportation--tasks established by the decisions of the November 1982 Plenum of the CPSU Central Committee and the directives of Comrade Yuriy Vladimirovich Andropov, general secretary of the CPSU Central Committee. We see the way to resolving these tasks in strengthening state discipline in the transport system, and primarily strengthening plan discipline; in combatting bad management in all the forms in which it manifests itself both at transport enterprises themselves and at enterprises and organizations making use of transport services, and in combatting crime and infringements of the law.

"I would like first of all to speak about the implementation of laws aimed at guaranteeing plan discipline. This is a very serious and multifaceted problem. According to the basic indicators of its activities, total number of loaded rail cars and tonnage, Moscow transport year after year fulfills and overfulfills the state plan tasks. There still remains a lag, however, in the transportation of individual cargoes, especially construction cargoes. The needs of a number of enterprises for the necessary rolling stock have not been fully taken care of. This can have an adverse effect on the fulfillment of their production plans. What are the reasons for the nonfulfillment of plans and tasks regarding the supply of rolling stock to enterprises? Above all, the fact of crude violation of state discipline. The procurator's office reacted in the appropriate fashion, not only to breakdowns in fulfilling tasks but to all negative manifestations bringing about these breakdowns.

"The railway system works at a very strenuous rate; nonfulfillment of the transportation plans is as a rule linked to a shortage of rail cars. We have therefore devoted our main attention to suppressing and preventing violations of legality, and continue to do so, for it is such violations which reduce the turnover of rail cars. In particular, an active struggle is being waged against demurrage of rail cars both on sidings at enterprises and in places for general use; a struggle is also being waged against damage to rolling stock, against empty runs of railcars to loading points through the fault of freight dispatchers, against underloading of rail cars and other violations of the railway regulations which give rise to losses in utilizing transportation resources. It is especially important to put an end to all above-norm demurrage of rail cars. Last year alone, in 1982, these amounted to 9,868,000 railcar hours on the sidings at enterprises under the Moscow Railway network alone. Had it not been for these losses, the railway would have been able to load up almost 225,000 railcars more.

As you see, above-norm demurrage of railcars led to great losses in terms of railcar resources. The heads of transport workshops and deputy directors of enterprises which had allowed railcars to stand idle were summoned to the procurator's office. As a rule these managers found objective causes--in their view--for the resulting losses. Thorough checks, however, showed that the majority of cases of demurrage were due to indiscipline, inefficiency and bad organization at work."

The speaker goes on to cite the case of the Kardymovo Sel'khozkhimiya Rayon Association, where over half of all railcars which arrived were detained after unloading. A fine of R12,285 was imposed by the railway on the association. The association chairman pleaded lack of warehouses and of workers, and shortage of handling equipment, but the chairman is responsible for organizing such matters and only his inactivity created problems with railcar unloading. In 1982, over 200 claims were filed against such lazy managers claiming damages caused to enterprises through fines for demurrage of rail cars.

"Cases of deception and eyewash are far from rare, finding their expression in dispatch of railcars loaded below the engineering norm and where the actual weight of the cargo deviates considerably from that stated in the accompanying documents. In order to obtain documents about the handing over of goods for dispatch, the managers of some enterprises knowingly send off under-weight cargoes, dispatching half-empty rail cars, so that the railway carries air, as they say, which goes down in the overheads as freight. Thus, during the transporting and procurement period for fruit and vegetables from the 1982 harvest, when railcars were opened up at their destinations, large incidence of considerable short weight was discovered. These cases amounted to between 20-25 tons of the dispatch. The transport procurators brought criminal cases on these facts and investigations were conducted. In the majority of cases, however, no misappropriations were brought to light. It was established that the offices took advantage of the absence of any proper checking by the stations to knowingly send off under-weight cargoes."

(Trusov) says that "In September 1982 cargoes of melons arriving at Ochakov-I station from the Prikaspispiy State Farm in Northern Caucasus were found to be as much as 40 tons short in some railcars. The cars were in good engineering order. The state farm manager eventually admitted that short weight had been dispatched."

"Any under-weight cargo not only has a negative effect on the utilization of the railway's transportation capacity, but also leads to deception in calculating plan fulfillment."

He says that many factories have been found to be underloading railcars, but instead of the railway refusing such under-weight cargoes, the documents showed incorrect weighing. Both sides in the transportation deal must accept their mutual obligations--both the railways and the dispatchers. It often happens, however, that due to goods not being ready for dispatch, the railcars cannot be made use of in good time, and the dispatcher fails to inform the railways about this. This gives rise to disorganization at stations and waste of capacity.

"On this point (Trusov) remarks that "in 1982 alone, goods dispatchers were to blame for 492,000 railcars not being loaded" and that procurators are looking into cases of responsibility for such instances, such as that at the Dorogobuzh Nitrate Works, where railcars were delivered for loading but were not used.

"(Trusov) concludes his talk by saying that the Soviet railway network transports over 3 billion passengers every year, and one-third of these are handled by the Moscow network; 3.5 million passengers use the Moscow railways every day. It is of the utmost importance to tighten up adherence to schedules to make more effective use of rolling stock and serve the needs of the population by raising the throughput capacity of the railways. Better services to passengers are also of great social importance. Advances have been made in this direction, as is shown by the fact that there has been almost a three-fold reduction in the number of complaints by Moscow rail passengers over the last 2 years. Problems are still being experienced in regard to keeping to schedules, however, especially where trains come from other rail networks; 28,000 trains were late last year due to other railway networks, especially the Southern, South-Eastern, Northern and Gorkiy Railroads. The disciplined work of railways and transport as a whole is essential for the national economy and society.

CSO: 1829/192

## RAIL SYSTEMS

### MOSCOW TV ON RAILROAD PROBLEMS, NEED FOR HEAVIER TRAINS

OW221147 [Editorial Report] Moscow Domestic Television Service in Russian at 0700 GMT on 20 April carries the weekly "Science and Life" program, which is devoted to transportation problems. After opening with the words "The Politburo is concerned about the state of affairs in transportation," attributed to CPSU Central Committee General Secretary Yu. V. Andropov, the program title "Transport--Problems, Decisions, Innovations" appears, and the narrator, special correspondent Igor Nikolayevich Zhukov, discusses problems of increasing the freight-carrying capacity of the Southern Urals Railroad. Zhukov interviews V. F. Nikolayev, the railroad's first deputy chief, who points to the need for heavier trains, with two pairs of locomotives providing the traction, insofar as more frequent running of trains is becoming impossible for scheduling and safety reasons.

Zhukov also interview "Boris Danilovich Nikiforov, USSR deputy minister of railways, USSR state prize laureate and doctor of technical sciences," who has been appointed by the Ministry of Railways to head a group studying the scientific and technical aspects of increasing train weight and traction. Nikiforov notes that among the proposed solutions for heavier trains is the introduction of eight-axle railroad cars.

The remainder of the program discusses introduction of a locomotive coupling method, in which one locomotive crew controls two pairs of coupled locomotives. The extreme slowness with which innovations are introduced into the practice of railroad transportation is stressed. The assistance of Chelyabinsk Oblast party organizations in helping the Southern Urals Railroad introduce technical innovations is discussed by Mikhail Gavrilovich Yoropayev, Chelyabinsk Obkom first secretary, who attended the November plenum of the CPSU Central Committee and heard General Secretary Andropov express concern over the need for the most rapid introduction of the achievements of scientific and technical progress into the national economy. The transportation topic will continue in the next "Science and Life" program, in which new principles of organization of train movement on the country's railroads will be discussed.

CSO: 1829/178

## MARITIME AND RIVER FLEETS

### SHIPBUILDING INDUSTRY'S ROLE IN CONSUMER GOODS PRODUCTION

Moscow KOMMERCHESKIY VESTNIK in Russian No 3, Feb 83 pp 2-4

[Interview with S. S. Vinogradov, USSR deputy minister of shipbuilding industry, by E. Lifshits: "The 'Commodity Conveyor' of the Shipbuilders"; date and place not specified]

[Text] The state plan for the USSR's economic and social development in 1983 calls for increasing the production of durable consumer goods and housewares by 8 percent. Enterprises in heavy industry are called upon to make a weighty contribution to carrying out this program. One of the leading places in carrying out our country's national economic plan is taken by the Ministry of Shipbuilding Industry. Along with its principal product, much attention is being paid here to the production of consumer goods as well. The raw materials base is being expanded for this purpose in order to manufacture them with optimum use of raw materials and to set up subdivisions for the principal product groups within the branch. S. S. Vinogradov, USSR deputy minister of shipbuilding industry, spoke about manufacturing products in volume demand in an interview with our special correspondent E. Lifshits.

[Question] Sergey Sergeyevich, please tell us about the assortment of consumer goods manufactured by enterprises in your branch. How is their production increasing in the 11th Five-Year Plan?

[Answer] Motorboats and rowboats, radio-phonographs, radio-cassette players, tape recorders, hi-fi systems, movie cameras, slide projectors, washing machines with hand wringers and semiautomatic, furniture in sets and individual pieces, various housewares and electrical appliances, toys, including electric toys, children's educational toys, souvenirs and gifts--this is by no means a complete list of the durable consumer goods and housewares manufactured by the ministry's associations and enterprises.

I will give some figures: In 1982 enterprises in the branch manufactured many hundreds of items in the amount of 613 million rubles in retail prices (the plan called for 600 million rubles). In the 11th Five-Year Plan as a whole the output of goods is set at 3.3 billion rubles--1.5-fold more than in the 10th.

The decree of the CPSU Central Committee and USSR Council of Ministers entitled "On Increasing the Production of Goods in Volume Demand and on Improving Their Quality and Assortment in the 1981-1985 Period" outlined a program for further development of production and for meeting public demand for these goods.

The higher requirements of consumers and the trade sector have posed as a priority task that the output of products in greater demand develop at a faster pace and that the assortment of goods be increased and their quality improved responsively. "The task is not only to increase output, but also to considerably improve the quality of consumer goods," Comrade Yu. V. Andropov, general secretary of the CPSU Central Committee, said at the November (1982) Plenum of the CPSU Central Committee. Steps are being taken in the branch to increase the output of the necessary goods.

To be specific, Minsudprom [Ministry of Shipbuilding Industry] has been set the target of manufacturing in the years of the 11th Five-Year Plan 2.2 million radios, 1.2 million tape recorders, 752,000 washing machines, 3.5 million table lamps, 500,000 floor lamps, 325 pairs of pinking shears, 386 million rubles worth of furniture and 114 million rubles worth of toys.

[Question] What is being done to develop a production capability for producing goods that are up to present-day requirements in their quality and assortment, and what are the prospects of this effort?

[Answer] The ministry sees the creation of specialized highly mechanized production operations, shops or sections with a completed technological cycle to be one of the most important resources to tap in developing the output of consumer goods.

In the years of the 10th Five-Year Plan 11 specialized shops were activated in the branch to manufacture tape recorders, furniture, electric teapots, motor-boats, metal products, radio cabinets and other goods.

In the 11th Five-Year Plan capacities are to be further enlarged for manufacturing durable consumer goods and housewares. Among new construction projects are shops to manufacture metal cookware, tape recorders, combination phonograph-cassette players, boats for outboard motors, hi-fi systems, furniture, lighting fixtures, washing machines and toys.

The capability is thereby being created for successful operation of the branch in the 12th Five-Year Plan. In recent years there has been a notable improvement in product quality. More than 200 products have been awarded the state Quality Emblem. In 1982 the share of products subject to certification in total output was 49.8 percent. The prestigious pentagon has been awarded to the "Volna-M" washing machine, the "Romantik-306" tape recorder, the "Krym" and "Yuzhanka-2" motorboats, the "Onega" and "Kefal" rowboats, the "Brig-001" booster amplifier, the "Korvet-003" turntable, the GZM-008 "Korvet" recording head, the 35 As-208 audio systems, the "Ulybka-78" and "Volshebnitsa" hair dryers, table lamps, lighting fixtures, helmets for motorcyclists and many other goods.

Constructive results have also been achieved in developing new products and putting them into production and in modernizing those already being produced. Moreover, putting new volume products into production is one of the points listed in the ministry's socialist obligations.

Last year alone the shipbuilders delivered to the trade network more than 40 new products for everyday use. They include the "Bakay-2" and "Yaz" pleasure rowboats, "Karavella-203-stereo" hi-fi-system with vertical placement of the record, the class 2 "Parus-201" cassette recorder, the "Volshebnitsa" and "Eol-2" hair driers, the "Nevskiy" miniature radio with medium- and short-wave bands, several pieces and sets of furniture, lighting fixtures, toys, children's educational toys and many other things.

At the same time we cannot be satisfied with the results that have been achieved. There are still a great many reproaches and complaints from consumers about the quality of tape recorders and other complicated appliances. There are also a number of outdated models on the assembly line.

Branchwide head subdivisions (departments and laboratories) bearing full responsibility for the quality level of the products assigned them, have been created in the branch in order to further improve the organization of efforts to develop the production of high-quality consumer goods. The paramount task of these subdivisions is to draft comprehensive target programs setting forth the volume of output, date by which new products are to be put into series manufacture, and the necessary set of organizational and technical measures.

[Question] Given the great diversity of goods, how is the problem being solved of using substandard raw materials in manufacturing them?

[Answer] We view use of such raw materials and waste in manufacturing volume products as one of the most important ways of raising production efficiency.

For instance, in 1982 we used in production 2.5 tons of secondary textile materials, 31.5 tons of waste polymer material, 1,200 cubic meters of waste from lumber mills and woodworking, and a sizable number of other types of substandard raw materials. They were used to manufacture 55,000 athletic bags, school satchels and shopping bags, 56,000 children's building sets with electric hookup, about 33,000 table lamps, 5,000 extension cords for electrical appliances, 6,000 sets of hardware for the "Diplomat" attache cases, toys and souvenirs worth 1.12 million rubles, about 2,000 articles for children's technical creativity and other goods totaling more than 1 million rubles.

In 1983 and subsequent years of the 5-year period we will be paying the most fixed attention to using substandard raw materials for manufacturing goods in volume demand and to save on primary materials by using secondary materials.

[Question] The development and creation of new prototypes of products and modernization of those being produced are impossible with effective aid from scientific organizations. How is production interrelating with science in solving these complicated problems?

[Answer] Many high-quality products have come to life in the branch thanks to the close alliance of science with production.

This applies first of all to the higher class of stereo sound reproduction systems, including the "Brig-001" booster amplifier, which has been awarded gold medals at two International Leipzig Fairs, the "Korvet-003" turntable with the GZM-008 "Korvet" stereo pickup cartridge, and the 35 AS-208 loud-speakers (columns).

R&D plans call for further development and improvement of this apparatus.

Institutes and design offices have developed and put into production the "Karavella-203-stereo" hi-fi system of a fundamentally new design (with vertical placement of the phonograph record), a number of pleasure boats--rowboats ("Yaz", "Taymen", "Yersh," and canoes) and motorboats ("Moskva-2", "Krym-3", "Neman", "Sarepta," etc.), the "Champion" home athletic conditioning set, the "Ekho-601" stereo earphones, the "Al'fa-203" automatic slide projector with automatic focusing, and the "Oreanda-201" combination radio-cassette recorder.

Close creative collaboration of industrial enterprises, scientific research and project planning and design organizations in the branch with the country's leading organizations of head ministries, such as VPKTIM [All-Union Project Planning and Design and Process Engineering Institute for Furniture], VNISI [All-Union Scientific Research Process Engineering and Project Planning and Design Institute for Illumination Engineering] (for household lighting fixtures), the Kiev NPO [Scientific Production Association] "Mayak," and also with VNIITE [All-Union Scientific Research Institute for Technical Esthetics], the All-Union Association "Soyuzpromnedreniye," TsNIIEPzhilishche [Central Scientific Research and Project Planning Institute for Standard and Experimental Housing Design] and other organizations is yielding appreciable results in the creation of new products that meet present technical, esthetic and ergonomic requirements.

Even in the development stage new goods are prepared for certification in the superior-quality category or for awarding the code "N," that is, in advance, even at the level of the technical assignments, we build everything into them that is the most up-to-date.

As I have already said, the head subdivisions created in the branch, which have been assigned a particular group of commodities, are called upon to play an important role in development and putting into production high-quality new goods for the people which are capable of competing with the best foreign examples. Fulfillment of comprehensive target programs drafted by these subdivisions for putting new products into series production will make it possible to even in the current 5-year period to furnish our consumers products capable of satisfying the most exacting tastes of the Soviet purchaser.

[Question] Sergey Sergeyevich, please tell us about your branch's participation at interrepublic wholesale fairs and about ties with the trade sector.

[Answer] We attribute great importance to the trade fairs, since it is through them that the road leads to the consumer.

Our branch is a direct participant in all the interrepublic, republic, kray and oblast fairs which are held. By participating in them we are able to evaluate the work of our enterprises and of the branch as a whole from the standpoint of the trade sector and consumers, to revise current and multiannual plans with respect to volume and the product list. In addition, the fairs are also to some degree a school for exchange of know-how in the production of consumer goods in different industrial branches.

A businesslike form of direct contact between industry and the trade sector has taken shape at the fairs. Take, for example, a problem so important to our branch as the problem of selling rowboats and pleasure motorboats.

In connection with a whole number of factors (the new price level, bans on motorboats on a number of bodies of water) the demand for pleasure boats has dropped off substantially. Taking into account the conditions that have come about on the market, a business meeting was held at the interrepublic fair in 1982 between responsible representatives of the USSR Ministry of Trade and Minsudprom at which effective measures were outlined to maintain the existing level of production of equipment for water recreation of the workers by reorienting manufacturers of the expensive motorboats toward the production of rowboats and sailboats.

Trade organizations are rendering us effective aid in determining the public's need for products in volume demand, i.e., in other words, the trade sector is our chief consultant in drawing up annual and 5-year plans for production of consumer goods in the branch.

Substantial aid in selecting the new list of products to be put into production is rendered to enterprises and associations of industry by the All-Union Association "Soyuzpromnedreniye" of the USSR Ministry of Trade. The experience built up by this organization, its recommendations, and the physical models which it has in its holdings make the work of specialists in the branch much easier, relieving them of exploratory design development, and make it possible even in the stage of drafting the technical assignment to incorporate progressive technical solutions.

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## MARITIME AND RIVER FLEETS

### DETAILS OF NEW SHIP 'SHESTIDESYATILETIYE SSSR'

Leningrad SUDOSTROYENIYE in Russian No 12, Dec 82 pp 3-5

[Article by B. K. Sidorov: "Shestidesyatiletie SSSR--A Modernized RO/RO Vessel"]

[Text] The first Soviet ro/ro ships of the "Neva" type were designed in 1973, and the lead ship of the series--the diesel motor ship "Ivan Skuridin"--was constructed in 1975 (SUDOSTROYENIYE, No 1, 1975). Since that time the vessels of this type have on the whole performed very well in the transport of quite varied cargo over practically all the oceans of the world (they are operated in the Far East, Azov, Baltic and Estonian merchant marine fleets). One ship of this design ("Marian") is being operated by the Yugoslav firm "Yadranska Slbodna Plovidba."

#### Background of Proposals for Modernization of the "Neva" Type Ships.

The primary difference between the "Neva" type ships and the concepts current prior to 1972-1974 on the optimal type of medium-tonnage ro/ro ship lies in the use as the primary engine of a low-speed diesel in place of the previously used nearly traditional medium-speed diesels produced by "Pilstik" and other firms. This decision first of all required changeover from an aft sloping ramp to a universal bow ramp--UZNAU (Universal Extendible Bow Ramp)--and to compensate for the loss of space connected with the use of low-speed diesel this required increase of the vessel hull length by about 10 percent in comparison with the closest analogs.

Initially this decision was considered to be a purely palliative and forced measure, and therefore was received sceptically by some specialists; recommendations were even made for the construction of a limited series of ships of this type with subsequent changeover to the seemingly (at that time) more promising "round-short" type vessel, with a medium-speed diesel engine. However, first the calculations and then the operating experience showed that in the medium-tonnage vessel only the bow location of the loading ramp permits cargo handling in a wide range of dock heights. At the same time the increase of the wave-making length of the hull with optimal block coefficient, which can be adopted in this case without any loss of capacity or problems with distribution of the cargo spaces, together with the nearly optimal main engine and propeller rotational speeds ensure excellent

propulsive qualities and minimal power expenditures per unit of cargo, i.e., minimal cost of delivery of a single packet, container, roll-on/roll off trailer and so on, other conditions being the same. Calculations showed that the one-time expenditures on increase of the hull length are recovered in less than a year of operation, thanks to the fuel savings (for average fuel prices). During the remaining 20-25 years of normal service life of the ship the fuel cost savings will be pure additional profits for the ship owner. Another definite advantage of the adopted decision was the fact that the service life of the 5DKRN 62/140-3 diesel is about three times the service life of the medium-speed diesel of similar power.

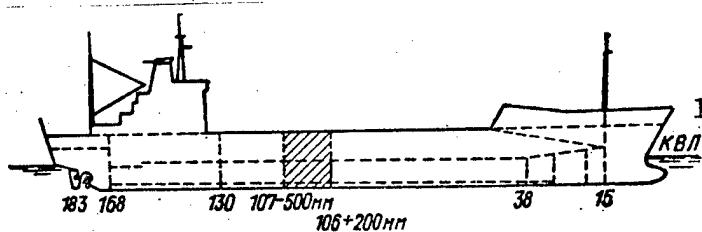
All these arguments, verified in practice, have led to the fact that the construction of the "Neva" type ships is still continuing in the 11th Five-Year Plan. In 1976 ships of this type were awarded the State Symbol of Quality. In an assessment of qualifications three years later this award was reconfirmed, which became possible thanks to continuous improvement of the vessels on the basis of new international convention requirements, replacement of equipment with more modern versions, and provisions for larger cargo capacity and broader capability for high-speed cargo handling.

The further search for ways to improve the economic effectiveness and competitiveness was based on the following circumstances: 1) the repeatedly expressed desires for further increase of the space available for containers and cars; 2) the reduction of the number of critical remarks regarding the supposedly unjustified vessel length increase; 3) the fact that in contrast with the conventional dry-cargo ships, in the ro/ro ships the hull weight increases linearly rather than as the square of the length ratio. Actually, in these ships the dimensions of the structural elements of the most highly loaded upper-deck plates are determined not from the conditions of overall strength, but rather on the basis of the roll-on cargo wheel loads. The decking thickness determined in this way and the subdeck structure ensure some excess buckling strength and limit load strength, since under the design sea-state conditions the cargo tiedown equipment with axial loads up to 600 kN/axle does not operate; 4) the fact that increase of the ship's length (in certain limits, naturally) is the most effective constructive way to increase the cargo-carrying capacity, since all the additional areas and the volume are completely utilized only for the cargo, and increase of the length by 10 percent provides 22 percent increase of the volume and tonnage. Thus, each square meter of cargo area and each ton of cargo capacity have the least cost; 5) the possibility of carrying out the modernization measures without disrupting the established cycle of series construction of the vessels.

**Essence of the Proposals and Their Realization.** A two-state modernization program was proposed in order to maintain the vessel construction and delivery cycle. In the first stage the vessel length is increased by installing a cylindrical insert, which provides increase of the volume, load-carrying capacity and the technical and economic performance indexes, while in the second stage the power of the ship's electric generating station is increased and the configuration of the propulsive unit is changed and its power is increased (in place of the three DGR 400/500 diesel generators there

are installed three 500/500 units with a new main switching panel, and in place of the two POU-185 mobile desalting units there is installed a single POU-500 unit). This configuration improves the maneuvering qualities of the vessel during docking and simplifies the control system and improves its operational reliability.

Stretching of the ship by 12.6 m, i.e., by 18 frame spacings, which on these vessels are 700 mm, is optimal with regard to the placement conditions of the design cargos--the international standard containers of length 6.1 and 12.2 m, roll-trailers and Zhiguli cars and so on. This stretching retains the sections of all the longitudinal and transverse hull structural members, the thicknesses of the outer skin sheets, the decking, the longitudinal partitions of the double sides and so on, as well as the structural components and elements adopted in the basic design. Introduction of the cylindrical insert required the installation of two additional car platform sections (one in the hold and one in the between-deck area) and four additional axial fans. The lighting of the hold and the between-deck area was increased correspondingly and several systems and their plumbing were modified.



Location of cylindrical insert (shaded). 1--design waterline

The location of the cylindrical insert was determined based on two conditions. First, it is located (as follows from its name) in the cylindrical part of the hull and, second, the ends of the cylindrical insert must coincide with the annular assembly joints of the main hull, which makes it possible to use in the construction practically all the working documentation used prior to modernization, with the introduction of only slight changes in this documentation. To this end numbering of the frames in the cylindrical insert region with double indexes is adopted.

The first ship constructed in accordance with the modernized design was named the "Shestidesyatiletie SSSR." It has successfully passed the entire gamut of tests and is now part of the Azov merchant marine fleet.

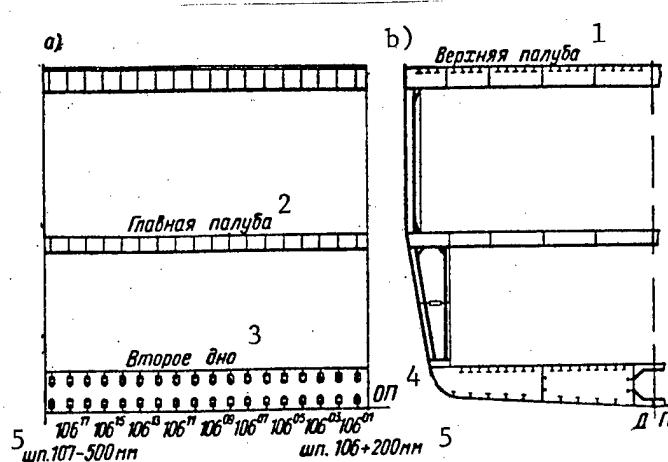
#### BASIC ELEMENTS AND CHARACTERISTICS

|                                  | <u>Before<br/>Modernization</u> | <u>After<br/>Modernization</u> |
|----------------------------------|---------------------------------|--------------------------------|
| Length between perpendiculars, m | 127.4                           | 140.0                          |
| Width, m                         | 19.2                            | 19.2                           |
| Summer load mark draft, m        | 6.62                            | 6.58                           |

|  |                     |        |
|--|---------------------|--------|
| Depth, m                                     | 13.1                | 13.1   |
| Displacement, t                              | 10,620              | 12,080 |
| Deadweight, t                                | 4,600               | 5,500  |
| Main engine type and power (kW)              | Diesel 5DKRN 62/140 | 4,500  |
| Test speed, kn                               | 17.0                | 16.7   |
| Capacity units                               |                     |        |
| 6.1-m-long containers                        | 250                 | 306    |
| 6.1-m-long roll-trailers                     | 143                 | 170    |
| Zhiguli cars                                 | 493                 | 600    |
| Below-deck volume, m <sup>3</sup>            | 11,620              | 13,250 |
| Average performance (2500-5000 mile trips) % |                     |        |
| Transport capacity                           | 100                 | 118    |
| cost per ton-mile                            | 100                 | 85     |
| profit per year                              | 100                 | 120    |
| Specific fuel consumption, g                 |                     |        |
| per ton-mile                                 | 15.25               | 12.42  |
| per container-mile                           | 390                 | 318    |

We should examine in more detail the questions of marine powerplant economics. The 5DKRN 62/140-3 low-speed diesel of nominal power 4500 kW at 140 rpm with specific fuel consumption about 218 g/kW-hr is used on the ships of the subject type. However it is known that the questions have been resolved relating to further improvement of the operating economic of the diesels in the 4400-5500 kW power range by reducing the specific fuel consumption to 197 g/kW-hr, and even to 185 g/kW-hr for some of the more powerful diesels. A legitimate question arises: should we not as one of the modernization stages provide for replacement of the existing main engine by the more economical 8DKRN 45/120-7 type of power 5300 kW at 170-175 rpm with specific fuel consumption 197 g/kW-hr? At a first glance this decision seems very attractive, since for powers of order 4400-5150 kW this would mean a saving of up to 600-700 tons of fuel per year of operation.

However, a more careful examination of the question shows that not only is the noted saving not achieved, this decision does not yield any savings. The fact is that in the final analysis for the shipowner it is the efficiency of the ship that is important and not the efficiency of the diesel engine. While the fuel consumption of the diesel is reduced by 10 percent by raising its parameters and increasing its speed from 140 to 170 rpm, the fuel consumption of the vessel as a whole increases as a result of reduction of the propulsive coefficient because of the increased propeller rotational speed. This situation was confirmed by studies of the magnitude of the propulsive coefficient as a function of the rotational speed change in the examined range in application to lumber ships of the "Vytegrales" type.



Cylindrical insert region: a) longitudinal section; b) transverse section  
 1, Upper deck; 2, Main deck; 3, Second bottom; 4, Centerline; 5, frame

Thus, in the present case 10-12 percent more power will be required to achieve the same cruising speed and the ship owner will not see any fuel saving. Rather he will suffer very significant losses, since the high-power diesel is more costly and the increase of its parameters and its stress level together with the larger number of cylinders, pistons and other detail parts will reduce the engine service life and increase the volume of maintenance work during operation.

The next larger diesel (6DKRN 67/170-7) has an optimal rotational speed (119 rpm), but is not suitable for the subject vessels because of its power (8750 kW) and overall dimensions.

The series of modernized ro/ro vessels, which has started to complement the maritime fleet in the year of the 60th anniversary of the founding of the USSR, will make a major contribution to resolution of the national economic tasks associated with increasing the volume and reducing markedly the cost of maritime cargo shipments.

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## MARITIME AND RIVER FLEETS

### KIEV PORT IMPROVES GRAIN TRANSSHIPMENT CAPABILITIES

Moscow RECHNOY TRANSPORT in Russian No 2, Feb 83 p 7

[Article by S. Kobets, chief engineer of the Kiev River port: "Direct Transshipment"]

[Text] In the 1982 navigation period the personnel of the Kiev port were faced with the task of transferring large volumes of imported grain directly from ships into railway cars.

Preparatory operations were started long before the opening of the navigation season. The port personnel studied carefully the progress in grain transshipment at such sea and river ports as Odessa, Il'ichevsk, Nikolayev, Lenigrad and Moscow-South. Together with the personnel of Ukriprorechtrans [Ukrainian State Planning Institute for River Transport] and the UkrSSR Main Administration of the River Fleet services they developed a mechanization scheme, providing for the use of a 10-ton-capacity gantry cargo crane, a mobile double-track hopper and other auxiliary equipment. The dock for the transfer operations had to be "borrowed" from the existing facilities.

In the period between navigation seasons we assembled and installed the gantry crane and the hopper system, and more than 100 m of the dock area was paved with concrete slabs and asphalt. It was decided to shift the loaded and empty rail cars during operations with the aid of a 5-ton lift truck, equipped with an interchangeable coupling unit. The coupler was developed by the port design bureau and consists of a plate with a railway car coupler mounted on it. On the plate there are guides for entry of the fork grip and pivoting hooks for attachment to the lift truck body. Installation of the coupler on the fork lift truck requires no more than 20 seconds. When traveling on the concrete pavement between the crane tracks, the lift truck develops traction sufficient to move five loaded rail cars.

To prevent grain spillage from the clamshell bucket during movement from the hold to the hopper, the latter is equipped with a removable metal apron plate. The apron plate is supported in a sloping fashion on the hopper so that its lower end is above the ship's hold, and any grain spilling from the clamshell bucket falls back into the hold. Extendable brackets (which regulate the position of the apron plate as a function of the water level and the type of ship being unloaded) are installed on the hopper gantry. During operation the

hopper is at all times coupled with the gantry by links located on the legs of the gantry; the hopper travels on the crane tracks alongside the ship as the latter is unloaded.

Machines of the KShP-5 type with remote control are used to clear the residual grain from the holds. The KShP-5 machine is a nobile unit on the carriage of which are mounted a screw-type pickup unit and two scraper-type conveyors. Separate drive for the traction wheels and the pivoting stockpiling conveyor provides good maneuverability in the hold. The productivity of the machine reaches 100 tons/h of grain, wheat and corn. Operating experience showed that cargo-handling clamshell buckets can also be used successfully to clean out the holds.

Considerable attention was devoted to organizational questions. Detailed technological documentation was prepared. Eight port workers (two from each shift), headed by the director of the second cargo handling region, spent a training period at the Odessa sea port, where they studied the operating techniques. Other port workers, including the acceptance and transfer personnel, were instructed in the rules for accepting the imported cargo from the ships and transferring it to the railway. The Kiev division of the Yugo-Zapadnaya [Southwest] Railway allocated special hopper-type railcars for the grain shipments, thanks to which the laborious operations associated with outfitting of the cars were eliminated and the loading was considerably simplified.

The preparatory work made it possible to begin transshipment of the grain in April without any delays. Five months of operation of this system confirmed the validity of the technical and organizational decisions. During this time more than 100 vessels of cargo capacity 600-2,000 tons were unloaded, and the average ship cargo handling time was reduced by a factor of 1.5. The established port goal for the transshipment of 100,000 tons of imported grain in 1982 was fulfilled ahead of schedule.

Plans have been made to increase the grain transshipment volume to 700,000 tons per navigation season by the end of the present five-year plan; therefore, the port personnel are already resolving the questions associated with increasing the handling capacity of the grain docks. After completion of reconstruction of the elevator dock, its handling capacity increased to 200,000 tons a year. To handle the remaining volume, the plans are to seek out additional reserves, introduce new mechanization aids, improve the technology and strive for closer cooperation with the railroad personnel. We can see a significant reserve in application of the so-called all-weather variant with the use of pneumatic transport. The use of pneumatic conveyors would make it possible to continue unloading in rainy weather and would significantly reduce the vessel turnaround time.

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## MARITIME AND RIVER FLEETS

### BRIEFS

NEW CONTAINERSHIP--The new containership "Pierre Pujad" of the Latvian Merchant Marine has started on its first voyage. The Bulgarian-built ship was named after the former leader of the Normandy-Neman Air Squadron. The diesel ship can transport more than 400 international standard containers at a time. [Text] [Moscow IZVESTIYA in Russian 24 Jan 83 p 1] 9576

SECOND MODERNIZED RO/RO DIESEL SHIP--The Leningrad Zhdanov Plant shipbuilders have launched the second modernized roll-on/roll-off diesel ship "XIX S"yezd VLKSM." Like its predecessor the "Shestidesyatiletiiye SSSR," which started on its first operational trip 2 months ago, the new diesel ship will bear proudly on its right side the "Distinguished Pentahedron of Quality." It is not often that the shipbuilders of this plant launch ships in the middle of the winter. Although this particular winter cannot be called severe, it did present the shipbuilders with many problems. The resourcefulness and extensive production experience of the workers overcame these difficulties. The first step toward the sea has been taken. The day when the Sakhalin sailors will come to take delivery of the "XIX S"yezd VLKSM" is not far off. [O. Levitskaya, Leningrad] [Text] [Moscow VODNYY TRANSPORT in Russian 8 Feb 83 p 2] 9576

NEW SUPERTRAWLER--Nikolayev, 16 Feb--The "Ivan Burmakov" has left the dock of the much-decorated Chernomorsk Shipbuilding Plant ahead of schedule for its port of registry (Liepaya). This is how the Nikolayev shipbuilders honored the 40th anniversary of the Battle for Stalingrad. The 38th motorized rifle brigade under the leadership of Colonel I. Burmakov showed great bravery and heroism in the defense of the city on the Volga. Burmakov is no longer alive, but his name will be carried over the oceans and seas by the large refrigerated trawler with the State Symbol of Quality on its side. This is a factory ship for bottom and variable-depth fishing and is capable of producing 50 tons of output a day. [A. Kucherenko] [Text] [Moscow PRAVDA in Russian 17 Feb 83 p 1] 9576

NEW DIESEL HYDROFOIL--The new diesel hydrofoil "Kometa" has left the Yevpatoriya seaport dock. This ship is equipped with more advanced navigation equipment and improved passenger accommodations. The passengers will travel between the two Crimean resorts of Yevpatoriya and Yalta. [V. Olshevskiy, Yevpatoriya] [Text] [Moscow VODNYY TRANSPORT in Russian 24 Feb 83 p 4] 9576

NEW DRY DOCK PROCEDURE--Vladivostok, 7 Mar--The shipbuilders of the Vladivostok Ship Repair Plant have learned how to put ships into the dock faster. A fishing trawler was put into the dock today using the new procedure. Previously, in the performance of this operation the empty bow holds were filled with sea water. This was done to balance the weight of the engine, located in the aft part of the ship. The ship was put into the dock only after leveling it on the surface. Then the water was pumped out. In the winter this created mountains of ice on the deck. When the new procedure is used the ship is put into the dock with the aid of special keel blocks--the keel support of the ship in the dock. Thanks to the shorter time required for this operation it will be possible to overhaul 10-15 additional ships a year. [TASS] [Text] [Moscow PRAVDA in Russian 8 Mar 83 p 2] 9576

POLAR SEA ROUTES--Dudinka, 10 Mar--The diesel motor ship "Noril'sk," the lead ship of a new series of the reinforced ice-breaker class, has completed its first arctic voyage. Thousands of tons of important commercial cargo were delivered from Murmansk to Dudinka. "The diesel ship showed excellent operating qualities on the North Sea route," said Captain Vonov. "We assisted the nuclear powered ships "Leonid Brezhnev" and "Sibir'" in escorting other ships, and on the Yenisey we cruised independently through a layer of ice more than a meter thick. A delegation of Noril'sk citizens visited us. The inhabitants of this large industrial center north of the Arctic Circle have taken over the operation of this diesel ship." New ships of this series--"Igarka" and "Tiksi"--are being readied for trips on the northern routes. [TASS] [Text] [Moscow PRAVDA in Russian 11 Mar 83 p 1] 9576

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## MISCELLANEOUS

### LUMBER ENTERPRISES AVOID RIVER TRANSPORT, PREFER RAIL SHIPMENT

Moscow EKONOMICHESKAYA GAZETA in Russian No 6, Feb 83 p 6

[Article by V Dmitriyev and A Chudinovskikh, engineer-economists, Kirov:  
"When Stimuli Do Not Work"]

[Text] Why enterprises situated near water arteries  
do not want to receive lumber from log rafts.

Recently much has been written and said about the difficulties on rail transport. The enterprises of the lumber industry have not circumvented this problem either. Shipments of the full volume of lumber products are not being provided. The extent to which low-level warehouses and timber handling centers are overloaded, for example in Kirov Oblast, resulted in a sharp increase in labor costs and spoilage of felled timber.

But no matter how strange it may seem, enterprises situated near water arteries do everything they can to receive less timber from log rafts (better yet, not to take any at all from them) and get most of it by rail. Thus the Kirov biochemical plant by hook or by crook, as they say, reached a point where even industrial-grade wood was delivered in quantities of 300,000 m<sup>3</sup> exclusively by rail. Other enterprises are striving to draw a similar line. How can this all be explained? First of all, of course, by the logic with which wholesale prices are applied for lumber products. Here are several examples.

Presently the biochemical plant, receiving felled logs by rail in MPS [Ministry of Railroads] cars, pays for it in wholesale prices "f.o.b. destination station, zone I of the first section tariff list." Let us imagine that industrial-grade logs were delivered to the biochemical plant via log rafting. In this case, the biochemical plant would receive them from "Vyatlesosplav" association on the basis of the wholesale price "f.o.b. destination station, zone I of the first section tariff list," i.e., at the same price as by rail. But from there the biochemical plant must bring the logs from the raft-making establishment into their own yard and prepare it for processing. In performing these operations, the biochemical plant will incur significant expanses which will add to the product's production costs. It is this variant which is unacceptable to the biochemical plant.

Now let us imagine that the timber handling center, which is also located in Kirov, instead of unloading the industrial-grade logs would bring them in a trailer into the biochemical plant's own yard using their own truck transport. The timber handling center pays the "Vyatlesosplav" for the logs, based on the wholesale price "f.o.b. receiving station, zone I". And the biochemical plant would pay the timber handling center based on the price "f.o.b. destination station, zone I" plus R2.30 for wheeling it out and plus costs for loading and shipment using the timber handling center's truck transport. This is, of course, not advantageous to either the timber handling center nor to the biochemical plant. Both enterprises will suffer a loss, and therefore, there is no desire to follow this route.

When these same logs are loaded into rail cars, the timber handling center will receive a state subsidy of R5.20 from the "Kirovlessnabsbyt" [Kirov Administration for Supply and Sales of Lumber Products] above the wholesale price for each cubic meter of timber loaded, and will thereby cover its wheel-out and loading costs. And what would happen if they loaded the logs into rail cars at the timber handling center and pushed them over onto the biochemical plant's siding? No matter how absurd this sounds, everyone would be satisfied in such a case, both the timber handling center and the biochemical plant. It hasn't as yet come to this in practice. The absurdity of such shipments are only too apparent. In principle, this possibility is admitted by the Tariff List No 07-03 "Wholesale Prices for Lumber Products."

Timber is being shipped by rail to the biochemical plant and other enterprises. As a result, not one or two cars are being diverted, but hundreds of them. And shipping costs are increasing and there are head-on freight flow patterns for the same type of timber.

Or yet another example. The timber handling center receives the raw materials for rail ties to be processed into a commercial commodity from a log raft (freight and stream driven), and by rail as well. To take a rough tie from the car, you need only a crane and crane operator. In this instance, there are no losses for raw material that are unavoidable with log rafting. But to take a rough tie after log rafting, it is necessary to do preparatory operations to receive the freight and stream driven logs, to set up a log raft receiving network to prepare the unloading machinery and maintain the equipment. As we see, the costs for receiving logs from a log raft and by rail are incommensurable.

Nevertheless, the cost for receiving the raw material after having been rafted is no way compensated by the tariff list. Therefore, one observes a tendency to increase the volumes of raw rail tie material shipped by rail and reduce the log raft volume. It will not be surprising if to the 800,000  $m^3$  of rough ties for the Kirov timber handling center are added. The situation is the same at other enterprises of the region which receive their logs after log rafting.

And further. It is known that truck shipments are more profitable than rail shipments over distances up to 100 kilometers (given the availability of a road, of course). Wholesale prices for lumber products are nevertheless not

differentiated so as to stimulate truck shipments over distances of, let us say, up to 100 kilometers. Tariff list No 07-03 stimulates the shipment of logs from the lower-level warehouses of Lespromkhoz [Lumber industry] to the consumer's yard only in certain instances where it is a function of the size of the rebate from wholesale prices for "f.o.b. destination station."

In all cases, truck shipment of rafted logs is not profitable to enterprises now. In the first place, the cost of rafted logs turns out to be much greater than for those delivered by rail. In the second place, rafted logs arrive covered with mud (particularly from a freight raft) which results in additional costs for cleaning them, and these costs are not compensated.

In a word, these are sorry results. Here we have both head-on freight flow of the same kind of logs and aggravation of railroad car scarcity, since they are diverted for inefficient short hauls. The search for and incorporation of the most efficient transport lines and systems as a function of the distance for the shipments and the types of transport are not being stimulated. Included here are also piles of rafted logs along the river banks which are rotting while waiting to be shipped by rail alone.

The facts which we have presented are apparent, and USSR Goskomtsen [State Committee of the Council of Ministers on Prices] and the MPS must do everything so that the enterprises that process logs and are gravitating toward log raft routes might be financially interested in using rafted logs in their industry, nor waiting for delivery of logs by rail. For the time being, the enterprises are unfortunately interested in having things the other way around.

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## MISCELLANEOUS

### MORE EFFICIENT METHODS FOR TRANSPORTING PAPER PRODUCTS

Moscow VODNYY TRANSPORT in Russian 8 Feb 83 p 2

[Article by A Koronen, senior technologist of the Petrozavodsk Port of the White Sea-Onega Steamship Company: "A Roll in a Container--On the Status of and Measures for Improving Paper Shipment"]

[Text] River workers of the White Sea-Onega Steamship Company, in collaboration with specialists from the Kondopoga Paper and Pulp Combine, have been transporting paper by ship for a long time. The volumes that are being transported are growing from year to year, the geographical area to which the ships are sailing with this cargo is expanding and handling technology is improving. New addresses such as Riga and Tallin appeared for us for the first time during last year's navigation period, as well as ports in the GDR. In just the second year of the five-year plan, we have delivered 24,500 tons of paper and, that means, 1,200 railroad cars have been released.

Specialists from the paper and pulp combine and the crews of the steamships "Volgo-Balt-200" and Volgo-Balt-209," led by captains, G Kruzhkov and V Kashin, participated actively in mastering this promising type of freight traffic. The most efficient variants were sought, paper was shipped on many vessels with capacities from 600 to 2,700 tons, with the rolls being stowed both in holds and on hatch covers in 5- and 20-ton containers.

A certain amount of experience was accumulated in loading steamships to their rated norm, i.e., up to 80 percent, using fork lift trucks with lateral racks to stow the rolls under deck. Practical experience has proved that the cargo capacity of a ship, and, it must be said, its carrying capacity, can and should be increased by 20 percent with combined loading, specifically by stowing rolls not only in the holds, but on deck in heavy-freight containers.

During test shipments of paper in 5-ton containers, it was revealed that with a vertical arrangement 5 rolls of 168 format paper can be loaded (168 cm long-90cm in diameter), while only 3 fit horizontally. However, because of the limited freight yards and the lack of proper equipment at publishing house centers, the paper must be unloaded from 5-ton containers at Moscow's Northern Port, with subsequent delivery of the rolls from the port by truck. This practice results in large additional labor and time costs, and also has a negative effect on shipping quality, establishing a lack of responsibility when determining specific causes for freight damage during shipping.

Delivery of paper in containers from the door of the consigner warehouse to the door of the consignee is the most efficient procedure. However, of the 4 centers for Moscow publishing houses where the Kondopoga paper arrives. Only two have small fork lifts equipped with lateral racks. This is why the rolls must be loaded into containers horizontally in spite of the fact that the capacity of the containers is reduced from 13 to 11 rolls. It is not difficult to conclude that for the most effective use of containers in each instance, the rolls must be loaded in a way that takes into consideration the technical capabilities of the consignee.

It must be noted that in 1982 the White Sea-Onega Steamship Company's container inventory was augmented by 100 new 20-ton containers. However, the "Volgo-Balt" 2-95-A ships cannot be used to ship them without strengthening the hatch covers and performing certain other renovating operations.

It is probably necessary for the Ministry of the River Fleet to examine the possibility and the economic expediency of assigning the specialized "Vakhtemir" container ships for paper shipment. They have right-fitting hatch closures which prevent the cargo getting wet during shipment and handling operations, and they have standard places for stowing and battening heavy-freight containers on the hatch covers, taking into consideration the complex weather conditions for sailing on the Onega and Ladga. The relatively small capacity of these steamships (1,500 tons) would have a positive effect on reducing the idle times for unloading at points where warehouse yards are limited and the lack of specialized truck transport for paper delivery to the publishing houses' centers from the port makes itself felt.

Crane grapplers to lift 4 rolls at a time were improved while in use, thanks to which the loading process was lightened and accelerated somewhat. A further reduction of manual labor and the crane operation cycle, as well as providing better safety for the paper, may also be achieved by incorporating special automatic grappling units which are in use in maritime ports.

Because of improvements in technology and the organization of freight operations the ship-hour norms for loading are being met. The crews are reducing the working time on each run, however all of this is reduced to nothing by the vast quantities of idle time, particularly at Moscow's Northern Port. Here the steamships at times become floating warehouses. Thus, during the 1982 navigation period, the actual idle time for ships of the White Sea-Onega Steamship Company in Moscow when loaded with paper was 3 times longer than that which was planned.

The precise operation of the entire transport process requires the urgent equipping of wharves with material-handling machinery, modern grapplers, and the uniform organization of paper shipment throughout the entire navigation period. It is desirable to use ships with a cargo capacity of not more than 1,500 tons, and with reliable hatch closures.

It is planned by the decision of the Karelian ASSR Council of Ministers on transferring paper shipment from rail to river transport and increasing the volumes of its delivery from Kondopoga on ships to raise the amount up to 60,000 tons during the coming navigation period, and up to 100,000 tons during the next year of the five-year plan. This goal represents a most important national economic task. Its realization will be a genuine contribution toward fulfillment of the CPSU Central Committee and the Council of Ministers Decree "On Improving Planning and Organization of the Shipment of National Economic Freight and Passengers, and Intensifying the Effect of the Economic Mechanism on Improved Operating Efficiency of Transport Enterprises and Organizations."

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